the Patch Tester

Contact Dermatitis | Haptens | Patch Testing

THE SOCIAL MEDIA ISSUE

"The Patch Tester" is a quarterly e-magazine from Chemotechnique to the Patch Testers of the world.

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PURPOSE

The Patch Tester is an e-mag developed by Chemotechnique to serve as an information resource for all Patch Testers and other Dermatologists around the world; not just in Sweden, or Europe, or America, but wherever the English language can be read and understood. This eleventh issue comprises thirty-five pages with various different topics and features. Ultimately, we plan for The Patch Tester to become the forum for all of us to communicate and cooperate, in all directions.

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If you would like to contact Chemotechnique about any aspect of The Patch Tester, or any other topic of mutual interest, then please write to us by clicking the "Contact" box on the front cover, or here.

ACKNOWLEDGEMENTS

Production Editors: David Alsheimer-Niklasson & Steve Lee

From the floor at the ESCD

With the ESCD over for this year we would like to thank all attendees that visited our booth at the exhibition and engaged with us in interesting conversations. It brings us much joy to once again be able to meet face-to-face and exchange ideas and discuss the latest topics in the world of patch testing.

For those of you who did not have the opportunity to attend the meeting we are pleased that all presentations and posters from the meeting are available for review online. Moreover, the next issue of the Patch Tester will be wholly dedicated to our impressions of the 2022 EADV meeting in Amsterdam.

The Use of Social Media Platforms to Discuss and Educate the Public on Allergic Contact Dermatitis

By Morgan Nguyen et al
In CONTACT DERMATITIS, 2022; Volume 86, pp 196-203.
See DOI: 10.1111/cod.14004

Social media platforms are increasingly used by patients to research their suspected medical problems, and to perhaps also to discuss their personal medical situation with family and friends.

The internet and the development of social media platforms have revolutionised the discussion and dissemination of health care information. It is estimated that at least 65% of adults use social media platforms, such as Facebook, Twitter, Instagram, Reddit and YouTube which are the five major English language platforms.

These platforms not only impact how we communicate with the world, but they are a valuable educational resource, particularly for health care information.

In a study, over 40% of patient respondents noted that social media influenced their decision to see a particular physician or select specific treatments for their acne.

Social media platforms are used to discuss diseases, and ACD is not an exception. Patients, physicians, industry, and professional organisations all contribute to this content, and it is accessible across a variety of online platforms. While some content is generated by physicians, patients and industry groups also post and share material. However, the quality of content, and the phrasing used, varies across the different groups.

Understanding the current presence of ACD information on the internet and social media sites can help physicians and professional organisations to improve their targeting and education of patients.

Patch testing physicians should be aware that information on ACD exists across social media sites, such as Twitter, Facebook, Reddit, YouTube, and Instagram. These are the most commonly used social media platforms in USA and western countries, though of course there are many other social media sites and apps, including in local languages.

Patch testing Dermatologists should know that there is an opportunity to share ACD information, but they should also be aware that patients are posting and creating online support communities independent of physicians.

The way each social media site searches for information on topics varies from platform to platform. Some use Search for topics, whereas others use hashtags.
Some such as Facebook are communities, dedicated to a particular topic. For example, there are 5 specific Facebook groups involved with ACD. The largest of these groups, "Eczema, Contact

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Dermatitis and Patch Testing Alliance," is dedicated to issues surrounding ACD and patch testing. Notably, two specific allergen groups (one for balsam of Peru/fragrance and formaldehyde allergies) were identified.

Reddit is perhaps the least well-known of the 5 main sites for Clinicians. It is an online posting board that discusses virtually any topic. Individual users can post comments within communities dedicated to a particular topic. The platform is available in multiple languages; however, English is most commonly used.

As a visual field, Dermatologists and their patients often generate content for and use social media to discuss diseases and treatment. Several studies have examined how social media are used by Dermatologists and patients. Previous studies have focused on the content of hashtags used on Instagram to discuss dermatological diseases (acne, eczema, and alopecia), how dermatology journals interact with their readers, which patients follow Dermatologists on social media, how social media can be used to prevent skin cancer, documentation of skin self-harming behaviour by children on social media, and broadly, how dermatology is discussed on social media sites.
Several papers have also analysed the content of general dermatology material across several platforms, including Facebook, YouTube, Instagram, and Twitter, and found the medical accuracy often to be of poor quality.
Although not a social media platform, Google and other search engines can provide tremendous insight into the frequency with which the public research a particular disease, such as ACD.

Patient support groups are a valuable resource for individuals with chronic medical conditions.

Given that there are a variety of allergens that can cause ACD, and avoidance strategies of allergens are different, such as rubber accelerators in shoes versus surfactants in soaps, niche communities such as support groups may provide invaluable support and guidance to patients. Furthermore, not all physicians who perform patch testing may be adequately trained to counsel patients on the significance and avoidance strategies for their sensitivities; so online support groups may help to fill this possible deficiency in useful information.

For example, on Facebook, there are several ACD support groups. Therefore, patch testing Dermatologists and Allergists should be aware of their existence in the event that a patient enquires about potential support groups, or the physician can voluntarily refer the patient to a suitable online support group or community.

On YouTube, Instagram, and Twitter respectively, 60%, 28%, and 27% of the content has been created by physicians. This suggests that physicians and patients may be more likely to use certain social media platforms than others to post and discuss ACD. Therefore, new educational content, should be posted on more than one platform in order to have the greatest reach.

As social media becomes an increasingly important platform to reach and educate the public, there are numerous opportunities for patch testing physicians to contribute to educational content. For example, as the educational content on YouTube is of variable quality so the development by physicians of high-quality patient educational material on patch testing and ACD may be useful.

Besides developing and posting new content, physicians posting such material in social media

What's New in Patch Testing?

platforms should share links to educational medical organisations, such as the European Society of Contact Dermatitis and the American Contact Dermatitis Society. This will improve patient accessibility to high quality and clinically beneficial information from the ultimate authoritative sources.

In addition, many national Dermatologist societies provide information for patients, in their society websites as well as on their own Facebook pages.

UK	https://www.bad.org.uk/patient-information-leaflets/
Australia	https://www.dermcoll.edu.au/for-community/find-support-group/
New Zealand	https://dermnetnz.org/
USA	https://www.aad.org/public & https://www.asds.net/skin-experts/skin-conditions
Canada	https://dermatology.ca/public-patients/skin/eczema/

Get out there and publish, not only in medical journals for your colleagues, but also on social media sites for your patients.

Dear Reader, if you have any particular article or book or website that you would like to have reviewed in a future issue of The Patch Tester, then please contact the Editor here.

Aluminium – Hapten of the Year 2022

By Magnus Bruze, et al
In DERMATITIS, January-February 2022; Volume 33, Issue 1, pp 10-15.
See DOI: 10.1097/DER.0000000000000836

This is an excellent review article by a very authoritative doyen of the patch testing world. Please read the full original article to gain the greatest benefit.

Exposure to elemental aluminium and its salts is unavoidable. Aluminium as a metal is present in transport, construction, packaging, and electronic equipment. Aluminium salts are present in consumer products, food items and drinking water, vaccines, drugs, and antiperspirants. Aluminium in vaccines and preparations for allergen-specific immunotherapy are the major sources of sensitisation.

The predominant clinical manifestations of aluminium allergy are pruritic subcutaneous nodules and eczematous dermatitis.

Patch testing is done using aluminium chloride hexahydrate (ACH) in petrolatum. The preparation with ACH 10% detects substantially more aluminium allergy than ACH 2%.

A patch test with elemental aluminium, for example, an empty Finn Chamber, is only positive when there is a strong aluminium allergy.

However, Aluminium test chambers can interfere with the testing resulting in both false-negative and false-positive patch test reactions to non-aluminium contact sensitisers.

A patch test reading should be performed 1 week after the application, in order to identify the late responses, which may be as much as 15% to 20% of cases.

Aluminium should be included in any baseline patch test series for children and investigated for a possible inclusion in baseline series for adults.

But why, you may well ask, is Aluminium now considered to be the allergen of the year??
It would be easy to point the finger at the vast COVID inoculation programs that have swept the globe in the past two years, which have been the focus of intense and ongoing surveillance of any possible adverse reactions to the various types of vaccines used. The vast majority of reports on aluminium contact allergy originate from exposure to aluminium hydroxide, in Allergen Specific Immuno-Therapy (ASIT) preparations and vaccines.

One particularly interesting aspect of aluminium allergy is its potential effect of interference in patch testing. Aluminium can affect the patch test result based on its physico-chemical properties.

On the one hand there is the known adjuvant effect on immediate allergic Type I reactions. This is why aluminium salts are used in almost all vaccines, due to their adjuvant effect on the active mole-

Hapten of the Quarter

cules of the vaccine, acting as a reservoir of the biologically active proteins that invoke the immune response in the patient. An interesting question is whether aluminium has any immune-modulating effect on delayed hypersensitivity. A lower number of contact allergies was noted in patients exposed to ASIT when compared with a control group before the start of allergen-specific immunotherapy (ASIT), which suggests a possible immunomodulatory dampening of the type IV sensitisation.

On the other hand, is the fact that the incidence of false-positive reactions to certain sensitisers has been statistically proven. For example, in an extended baseline patch test series investigated in Sweden with 5,446 patients who were tested with Finn Chambers to hold the test substances, there was a significant over-representation of contact allergy to aluminium among patients with positive reactions to sodium tetrachloropalladate, *Myroxylon pereirae*, caine mix II, and palladium chloride. This was especially evident among patients with a strong aluminium allergy compared with patients with a weak aluminium allergy. There may be a simple chemical explanation of this phenomenon; high amounts of chloride (sodium tetrachloropalladate, palladium chloride) and acid (*M. pereirae*, caine mix II) probably caused corrosion of the aluminium surface of the Finn Chamber resulting in the release into the patient's test sites of de novo aluminium salts, thereby invoking sensitisation.

When there is a clinically suspected strong contact allergy to aluminium, the Finn Chamber may also yield a positive reaction. Such elemental aluminium should, thus, never be patch tested alone when aluminium contact allergy is suspected. Aluminium chloride hexahydrate in petrolatum is the most common patch test preparation. The concentrations used have varied from less than 1% up to 20%. Previously, ACH 2% has been recommended for patch testing but ACH 10% is now known to be the most sensitive concentration.

The authors conclude that Aluminium should be included in any baseline patch test series for children. Aluminium should be temporarily patch tested in national and international research groups on contact allergy to investigate whether it is justified to consider aluminium for inclusion in baseline patch test series.

Aluminium haptens from Chemotechnique

Art no	Name	Conc.	Veh.
A-038	Aluminum hydroxide	10.0%	pet
A-022	Aluminium(III)chloride hexahydrate	2.0%	pet

Nickel Barrier cream

NIK-L-BLOK™

The most innovative barrier cream on the global market.
Designed and created specifically for nickel-sensitive persons.

Nickel is by far the most commonly encountered contact hapten causing Allergic Contact Dermatitis, and so is of great importance to nickel-sensitised persons and to their Dermatologists.

Unfortunately, despite decades of regulation by various authorities in many countries around the world to limit the use of nickel in common every-day articles, it is still very difficult or impossible for members of the public as well as certain categories of workplace professionals to avoid coming into contact with nickel.

Until now, the best and most commonly expressed advice that medical professionals have been able to give to their nickel-sensitised patients has been to “avoid nickel” in order to avoid subsequent signs and symptoms of allergic contact dermatitis.

But now, with the unique NIK–L–BLOK product, there is an alternative option for the nickel-sensitive patient or person.

Chemotechnique Cosmeceuticals have developed and made available to the public our nickel barrier cream NIK–L–BLOK, for the every-day skincare routine of nickel-sensitised individuals.

NIK–L–BLOK is the world’s first patented, active barrier cream that encapsulates nickel ions, blocking them from penetrating the skin when in contact with metal objects that contain nickel.
Active ingredients in the cream work effectively to protect the skin both internally and externally, preventing the development of allergic reactions such as eczema, dryness, blisters, redness and itching.

Nickel Allergy

When your skin is exposed to nickel, even nickel in a mix of other metals, free nickel ions penetrate the outer skin layer (stratum corneum) and bind to proteins in the dermis layers. The haptens of zinc ions then become allergens. When the accumulated exposure to nickel surpasses a critical threshold, then the per-

Nickel Barrier cream

son's immune system treats the nickel bound in skin proteins as a threat, and then causes the development of the various signs and symptoms of allergy to the nickel. The person is then sensitised against nickel. This sensitisation threshold varies greatly among individuals.

Unlike most other types of allergies (such as respiratory allergy to house dust mites or pollens or animal danders), the signs and symptoms of contact allergy, such as to nickel, are not immediate but are called delayed reactions, usually presenting 12-48 hours after exposure to the substance. Once a person responds with an allergic reaction to nickel, any future exposure of nickel to the skin may result in an allergic reaction.
There are several different signs of an allergic reaction, as shown in the 5 illustrations below

How NIK–L–BLOK Works

Nickel ions trigger allergic reactions only after having penetrated into the skin.
NIK–L–BLOK is a revolutionary active skin barrier cream based on a patented chelating formula using the active ingredient DTPA to capture free nickel ions. When the skin is in contact with metal objects containing nickel the DPTA then blocks the nickel ions from permeating into the skin.

In total, the ingredients in the cream work effectively to protect the skin both internally and externally, thereby preventing the development of allergic reactions such as eczema, dryness, blisters, redness and itching.
By using NIK–L–BLOK regularly on exposed skin areas that may come into contact with nickel (either in the occupation or work, or in daily life), sensitisation towards nickel will be prevented, as the skin remains protected against nickel-induced Allergic Contact Dermatitis.

Chemotechnique – Nickel Detection

Chemotechnique does not only provide leading diagnostic solutions within the field of contact allergy, and nickel protectiont, but also a test to detect the presence of nickel in metal objects. The Chemo Nickel Test has been the first choice of medical practitioners in the detection of free nickel in metal objects since its introduction in 1995. As a testament to its proven quality, the Chemo Nickel Test is the only one-step nickel detector sold through retail pharmacies in Sweden.
The test consists of an ammoniacal solution of Dimethylglyoxime (DMG) for the detection of nickel in various metallic objects. DMG produces a bright, reddish-pink insoluble salt with nickel. The Spot Test detects free nickel down to a limit of 10 ppm (parts/million)1. The sensitivity threshold of most nickel allergic patients is above 11 ppm. Some strongly allergic patients will however still react to objects releasing amounts below the threshold of the test.

For further information on Chemotechnique Nickel Test see **here.**

Drug Reactions

In the last few months, the journals DERMATITIS and CONTACT DERMATITIS have published three articles around the same topic of Allergic Dermatitis from pharmaceutical drugs. These three articles are detailed as follows:

1. Systemic Allergic Dermatitis (Systemic Contact Dermatitis) from Pharmaceutical Drugs: A Review
By Anton C. de Groot
In CONTACT DERMATITIS, 2022; Volume 86, pp 145-164.
See https://onlinelibrary.wiley.com/doi/epdf/10.1111/cod.14016

2. Patch Testing in Drug Eruptions: Practical Aspects and Literature Review of Eruptions and Culprit drugs
By Anton C. de Groot
In DERMATITIS, January-February 2022; Volume 33, Issue 1, pp 16-30.
See https://journals.lww.com/dermatitis/Fulltext/2022/01000/Patch_Testing_in_Drug_Eruptions_Practical_Aspects.4.aspx

3. Skin Tests in the Work-Up of Cutaneous Adverse Drug Reactions: A Review and Update*By Annick Barbaud, et al*
In CONTACT DERMATITIS, 2022; Volume 86, pp 344-356.
See https://onlinelibrary.wiley.com/doi/epdf/10.1111/cod.14063

Systemic Allergic Dermatitis (Systemic Contact Dermatitis) from Pharmaceutical Drugs: A Review

Systemic Allergic Dermatitis (SAD) is also commonly known as Systemic Contact Dermatitis. It is a condition that occurs when an individual who has been sensitised to an allergen (hapten) from contact with the skin, mucosa, or both, is exposed to that same allergen or a cross-reacting molecule through a systemic (haematogenous) route. Systemic exposure may occur from transcutaneous, transmucosal, oral, intravenous, intramuscular, intra-articular, subcutaneous, intralesional, intravesical, and inhalational routes, as well as implants.

Possible manifestations of SAD are diverse, and include reactivation of previous eczema and previous positive patch tests, acrovesicular (dyshidrotic) dermatitis, various drug eruptions, including dermatitis/eczema, maculopapular eruption, urticaria, erythema multiforme-like reactions, photoallergic dermatitis, and, sometimes, systemic symptoms.

The main groups of haptens/allergens involved in SAD are metals (notably mercury and nickel), plant products such as in herbal teas, and in foods including Myroxylon pereirae resin (balsam of Peru) and its constituents used as spices and flavourings, and pharmaceutical drugs.

The pathophysiology of SAD, apart from (although highly likely to) being mediated by delayed-type hypersensitivity, is incompletely understood and an explanation for the diverse clinical manifestations is lacking. This review by de Groot focuses on drugs, both topical and systemic, as causes of SAD.

The author manually searched all issues of DERMATITIS journal going back to 1990 and all issues of CONTACT DERMATITIS journal since its inception in 1975.

The author found 41 culprit drugs causing SAD in 95 patients.
The most frequent culprit drugs evaluated in this study were as follows:

- Budesonide (23 reactions)
- Bufexamac (17 reactions)
- Dibucaine (8 reactions)
- Chloramphenicol (4 reactions)
- Diltiazem (3 reactions)
- Tetracaine (3 reactions)
- Acetarsone (3 reactions)
- Neomycin (3 reactions)

These together caused over 60% of all cases of SAD to topical drugs.
Twenty-four topical drugs (59%) caused only one case each of SAD.

Nearly 60% of these drugs have induced only one case of SAD, and over half of all reactions were caused by just four topical pharmaceutical products: budesonide, bufexamac, dibucaine, and chloramphenicol.

With only 95 reported patients showing SAD (proven or likely) caused by 41 different culprit drugs, such reactions appear to be very infrequent.

Patch Testing in Drug Eruptions: Practical Aspects and Literature Review of Eruptions and Culprit drugs

Drug hypersensitivity reactions (DHRs) are adverse effects of drugs that clinically resemble allergic reactions. They are called drug allergies when a definite immunological mechanism (either drug-specific antibody or T cell mediated) has been demonstrated. Drug hypersensitivity reactions affect more than 7% of the population and involve 5% of hospitalised patients, and are associated with significant morbidity and mortality.

There is overwhelming evidence that many delayed cutaneous adverse drug reactions (beginning >6 hours after drug intake) are mediated by delayed-type (type IV) hypersensitivity, including maculopapular eruptions, erythroderma, symmetrical drug-related intertriginous and flexural exanthema/baboon syndrome, eczematous eruptions, fixed drug eruptions, acute generalised exanthematous pustulosis, and drug reaction with eosinophilia and systemic symptoms/drug-induced hypersensitivity syndrome.

Therefore, after resolution of the reaction, patch tests should be performed as the first diagnostic method to identify the culprit drug(s). This article by de Groot (#2 above) provides tools to perform drug patch tests properly and safely, discussing clinical history, indications, procedure, drug patch test materials, sensitivity, the meaning of negative patch tests, and safety of the procedure. In addition, a literature review of eruptions and culprit drugs is provided in tabular format.
There is also a very useful comprehensive table showing which manufacturers offer which commercially available patch test haptens/allergens amongst the pharmaceutical drugs.
There are no less than 67 drugs available as patch test haptens from Chemotechnique, whereas SmartPractice Canada offers 62 drugs and SmartPractice Europe offers just 28 drugs as patch test substances.

This is an incredibly complex and comprehensive report, and the reader is strongly encouraged to read the original article, and to retain it for future reference, in order to gain the maximum benefit for their patients.

Skin Tests in the Work-Up of Cutaneous Adverse Drug Reactions: A Review and Update

Skin tests, including patch tests (PTs), prick tests (SPTs), and intradermal tests (IDTs), are useful in identifying the culprits of cutaneous adverse drug reactions (CADRs), and also determining safer alternative drugs.

Patch Tests (PT) have a low sensitivity but are valuable in investigating maculopapular exanthema (MPE), as well as severe CADR, including toxic epidermal necrolysis (TEN), Stevens-Johnson syndrome (SJS), and in particular, acute generalised exanthematous pustulosis (AGEP), and drug reaction with eosinophilia and systemic symptoms (DRESS).

Skin Prick Tests (SPT) are mainly used in the evaluation of immediate-type I hypersensitivity to identify the biological substances such as House Dust Mite, pollens and animal danders that cause Allergic Rhinitis, Allergic Asthma, and also Gastro-Intestinal problems due to food allergens such as peanut, shrimp, etc. The SPT can be performed with all drugs, except opiates.

Intra-dermal Tests (IDT) can be used to explore immediate and delayed-type hypersensitivity, if an injectable form of the drug exists. Except for SJS/TEN, IDTs should be performed by injecting 0.02 mL of the drug.

The authors of this article provide a practical, up-to-date review on the use of these three different types of skin tests in the work-up of CADRs.

Numerous negative controls for drug PTs, as well as criteria for the immediate and delayed positivity of prick tests and IDT, are included. It should be emphasized that a negative result never excludes the potential responsibility of a drug in a CADR.

Unfortunately, accord to the literature, there are large variations in the way that drug skin tests are performed, making comparison between centres difficult. Moreover, there are also clear differences in the clinical approach to CADR between Europe and North America.

Drug skin tests are useful in the work-up of cutaneous adverse drug reactions (CADRs). They can be used to identify the responsible drug(s), to study cross-reactivity between drugs, and to determine safer alternative drugs. Moreover, drugs testing negatively can be used to guide drug challenges (provocation tests), which still constitute the gold standard in the work-up of drug hypersensitivity.

Drug skin tests are only useful in CADRs that display an immuno-allergic mechanism. They are of no value in the investigation of pruritis, vasculitis, drug-induced auto-immune diseases, drug-induced pigmentation, to investigate cross-intolerance to non-steroidal anti-inflammatory drugs (NSAIDs), and drug-induced bradykinin-mediated angioedema.

Skin Symptoms in Veterinary Assistant Staff and Veterinarians: a Cross-sectional Study

By Beine Alexandra, et al
In CONTACT DERMATITIS, 2022; Accepted article.
See https://doi.org/10.1111/cod.14146

Occupational skin diseases (OSD), particularly hand eczema (HE), are by far the most frequently reported occupational disease (OD). In 2019, approximately a quarter of all reported OD in Germany were attributed to OSD. Veterinarians and their medical staff have an increased risk of developing OSD, since they are exposed to numerous skin hazards on a daily basis, due to for example, wet work, contact with irritants and biological materials, as well as the frequent use of disinfectants and cleaning agents.

Veterinary Assistants and Veterinarians are at an increased risk of developing an occupational skin disease e.g.,These OSD conditions are, for example, irritant / allergic contact dermatitis, contact urticaria, and hand eczema.

Veterinarians in the US and Australia have a high prevalence of HE (13-16%), with a higher percentage reported in females (22-25%) compared to males (8.8-10%).

In this study, in addition to the OSD, almost one in five Veterinarians reported animal-related skin symptoms.

European Veterinarians have previously reported a high incidence of non-infectious dermatoses (79.3%), mostly due to contact urticaria and irritant and/or allergic contact dermatitis.

A recent study from India found that 29.3% of the study group composed of Veterinarians and Assistant Veterinarians may have skin problems.

Nevertheless, only a few studies have focused on the health problems among Veterinary Assistants, as opposed to Veterinarians. Obviously, these two professional groups have different roles in their veterinary practices, and so will have different exposures to different chemical substances. Compared to Veterinarians, who are usually the practice owners, Veterinary Assistants have longer working hours, with direct and more intense contact to the treated animals including washing and the shaving of fur. Furthermore, they are responsible for room hygiene, in particular cleaning, and disinfection of instruments. All these activities have to be carried out in compliance with hygiene guidelines and require frequent hand washing/disinfection as well as frequent wearing of occlusive protective gloves

To discover about the skin symptoms of Veterinary Assistants, the authors of this study conducted

a cross-sectional evaluation on veterinary staff, of whom 90% were Veterinary Assistants, to assess respiratory and skin health problems, including exposures and sensitisations.

Typical contact allergens in veterinarian staff might cause immediate and/or delayed-type allergic reactions. Immediate-type allergens include, for example, animal proteins (dander/hair/urine/serum) and proteins of natural rubber latex. Delayed-type allergens include rubber chemicals, topical medication (e.g., antibiotics), as well as disinfectants and biocides.

The study focussed on the prevalence of skin symptoms, particularly self-reported HE, its predisposing factors, and related skin conditions, such as atopic dermatitis (AD), contact urticaria (CU), and allergic contact dermatitis (ACD).

In this study, the authors found:

1. Over 50% (62/122) reported cases of hand eczema (HE) in the previous 12 months.
2. Twenty-seven subjects (22%) reported redness and contact urticaria directly after animal contact.
3. Thirty-five (29%) had a positive history of ACD.
4. Hand Eczema was associated with
   i) increased frequency of hand washing, (11-15 times per day)
   ii) unprotected contact to fluids and tensides/surfactants (> 5 times per day).
5. The prevalence of a self-reported history of HE was 49.1% (60/122). 18% (22/122) reported that they had a history of HE before starting their profession.
6. Urticaria or redness after animal contact was reported by 23.5% (27/113), of whom 15% (17/113) had HE.
7. Subjects reporting urticaria or redness after animal contact had a higher rate of atopy (59.3% vs 27.3%) and showed enhanced sensitisation to cat and dog (37.5% vs 10.3%), as well as against all tested furry animals (40.7% vs 10.3%) compared to the rest of the study population.
8. Of the subjects with possible allergic CU, 36.4% (4/11) also showed work-related respiratory symptoms such as rhinitis or asthma.
9. Self-reported ACD was more frequent in the HE subjects compared to those without HE (40.4% vs. 21.4%).
10. Only half (17/35) of self-reported ACD cases were confirmed by physician diagnosis.
11. Three of these ACD patients reported local ACD reactions to antibiotics (neomycin, erythromycin/framycetin sulfate/oxytetracycline, and sulphonamide/cephalosporine), and one to animal epithelia.
12. Continuous wearing of gloves for >30min was identified as a potential risk factor for HE.

Based on the results of the study, the authors state that regular unprotected contact with irritants and the infrequent use of protective gloves indicate overall poor protective behaviour. Optimisation of workplace conditions and education, e.g., on unprotected contact to irritants, as well as a reduction in the frequency of hand washing should be discussed. These simple measures could reduce OHE.
Such programs are well established in Germany, but are not specifically targeted to Veterinarians and Veterinary staff. Therefore, specific educational programs, as well as easy access to Dermatologists and/or other specialists in occupational medicine should be warranted in this group. Raising awareness and avoidance of known risk factors appears to be an obvious and pragmatic initial solution.

Subsequent to any development of occupational HE, access to secondary prevention education seminars and Dermatologists is important. Such actions could change the course of OSD in general, and subsequently enable those affected Veterinarians and Veterinary Assistants to continue with their chosen profession and occupation.

Contact Allergy to Haptens in the Swedish Baseline Series: Results from the Swedish Patch Test Register (2010 to 2017)

By Daniel Andernord, et al
In CONTACT DERMATITIS, Volume 86, Issue 5, March 2022, pp 175-188.
See https://doi.org/10.1111/cod.13996

It is important to continuously monitor temporal trends of contact allergy, because changes in, for example, fashion and industrial technology expose people to different haptens over time. The most well-known database for monitoring contact allergy is the European Surveillance System on Contact Allergies (ESSCA) established in 1996 (www.essca-dc.org). The Swedish Patch Test Register (EpiReg) can reveal changes in contact allergy prevalence over time among patients patch tested in Sweden.

In this study, data was compiled based on patch test results with the Swedish Baseline Series for 21,663 patients, of whom 69% were female.

Females had significantly more positive patch tests (54% vs 40%).

In summary the results showed the following prevalence rates, in order:

- Nickel sulphate 20.7%
- Fragrance mix 7.1%
- Myroxylon pereirae 6.9%
- Potassium dichromate 6.9%
- Cobalt chloride 6.8%
- MCI/MI 6.4%
- MI 3.7%
- Colophonium 3.5%
- Fragrance mix II 3.2%
- Formaldehyde 3.2%

The authors of the study made some interesting observations of note:

1. The female-to-male ratio among tested individuals and the proportion of positive reactions per tested individual were higher than in previous reports. Wether this represents a shift in the selection of patients for patch testing or a true change in the population has to be studied further. For example, the findings from this study that males had more negative patch test results than females might indicate a selection bias for patch testing.

2. Myroxylon pereirae reaction prevalence increased from 5% in 2010 to 9% in 2017, which exceeds the prevalence rates recently reported from Central Europe.

3. Methyldibromoglutaronitrile (MDBGN) also increased during the term of the study, from 3.1% to 4.6%. This increase was also statistically significant. This increase is in contrast to what could be expected following the prohibition by EU of MDBGN use in hygiene products in 2007. Another recent study also indicated that the prevalence of MDBGN reactions is, in fact, not decreasing. This may indicate a possible unknown or uncontrolled mode of exposure to this preservative. MDBGN used in non-cosmetic products is known as DBDCB (dibromodicyanobutane). It has recently been hypothesised that whilst the use of MDBGN/dibromodicyanobutane (DBDCB) in the EU is regulated, its use in chemical products and medical devices is largely undisclosed in labelling, owing to insufficiently protective legislation.

4. In contrast, MCI/MI and MI reactions decreased in prevalence after 2014, mirroring the changes also seen in Europe.

5. positive readings for formaldehyde doubled when the test concentration for formaldehyde was increased from 1.0% to 2.0% in 2014, in line with recommendations from the European Baseline Series.

6. Nickel remains the most common sensitising agent, with reaction prevalence decreasing among females younger than 20 years.

7. Two of the sensitisers with the highest proportion of strong (+++) reactions among the positive reactions were para-phenylenediamine (PPD) and Textile Dye Mix (TDM). As expected, many patients reacted simultaneously to both: 47% of the patients allergic to PPD and 43% of the patients allergic to TDM. In those with a strong reaction to TDM, 85% have a concomitant strong reaction to PPD. These strong reactions are most likely due to cross-reactivity between PPD and disperse Orange 3 in TDM. Ongoing studies by the SCDRG and ICDRG are investigating what it would be better to remove disperse Orange 3 from TDM.

As always, for full information, please read the original article in CONTACT DERMATITIS.

What is the Added Value of Patch Testing with 30 Fragrance Allergens in Addition to the European Baseline Series.

By Rosalie Krijl, et al
In CONTACT DERMATITIS, Volume 86, Issue 5, May 2022, pp 390-397.
See https://doi.org/10.1111/cod.14065

In the general European population, sensitisation to fragrances varies between 3.9% and 5.5% and has been increasing over the past decades. Previous studies showed that the EBS is not able to identify all patients with fragrance allergy. The Fragrance Mix I (FMI) and Fragrance Mix II (FMII) may even fail to identify their own constituents.

Cosmetic products sold on the European market are required to be labelled if they contain a certain concentration of 26 fragrance substances known to be contact allergens in humans. Only 14 of these 26 substances are present in the European Baseline Series (EBS) as part of FMI and FMII. As the exposure to environmental allergens is constantly changing over time, patch-test series also need to correspondingly adapt in order to remain clinically relevant and valuable.

The common terpenes linalool and limonene are considered two of the most frequent fragrance ingredients and dl-limonene is also used as a solvent and industrial degreasing agent. Although they are uncommon fragrance allergens in their pure forms, oxidation transforms the pre-haptens linalool and limonene into potent allergens. These oxidised terpenes with stable concentrations of the main allergic hydroperoxides have been shown to be useful tools in detecting fragrance sensitisation.

Recently, various contact allergy groups have therefore advised the inclusion of oxidised linalool and dl-limonene in their baseline series. However, due to the irritant potential of linalool and dl-limonene, their inclusion in the EBS is still being debated.
At the Amsterdam University Medical Centers (AUMC) the authors of this study have since 2019 been routinely testing for these terpene hydroperoxides. In addition, oil of turpentine, a substance that is used as a raw material in the perfume industry, has been routinely tested, due to increased sensitisation rates.

The aim of this study was to assess the added value of performing patch testing with the hydroperoxides of linalool and limonene, as well as oil of turpentine, in addition to testing with the EBS. Other objectives of this study were to report the sensitisation rates of the tested allergens and to analyse co-reactions between the substances.
For this study, the 26 individual fragrance substances that require labelling according to the EU Cosmetics Directive (including the pure forms of linalool and limonene), plus oil of turpentine were considered as the Fragrance Series.

Between November 2019 and January 2021, a total of 323 patients were included in this study, with the majority of the female (75.9%), with a median age of 41 years.

A total of 502 positive reactions were seen in 162 patients (50.2%).
Sensitisation rates for the individual haptens was found to be as follows:

- Linalool hydroperoxide 1.0% 24.1%
- Linalool hydroperoxide 0.5% pet. 17.2%
- Limonene hydroperoxide 0.2% pet. 13.9%
- Limonene hydroperoxide 0.3% pet. 10.2%.

All allergens of the Fragrance Series elicited positive patch-test reactions. Among these, the most sensitising substances were as follows:

- Citral 6.2%
- *Evernia furfuracea* 4.6%
- *Evernia prunastri* 4.0%.

Doubtful reactions were observed for all allergens, but most frequently for linalool and limonene hydroperoxide.
Irritant reactions were recorded for *Myroxylon pereirae*, linalool hydroperoxide 1.0% pet., limonene hydroperoxide 0.3% pet., cinnamyl alcohol, *Evernia prunastri*, citral, and benzyl alcohol.

The clinical relevance could not be assessed for 41.8% of all positive patch-test reactions.
Of the assessed reactions, 58.9% were considered clinically relevant.
Sensitisation to HICC (80.0%), FMII (69.5%), FMI (62.5%), *Myroxylon pereirae* (56.5%), and the hydroperoxides of linalool 1% pet. (55.1%) and 0.5% pet. (58.3%) and limonene 0.3% pet. (55.6%) and 0.2% pet. (50.0%) were most frequently considered as clinically relevant.

Of all 502 positive patch-test reactions, 330 (65.7%) were reactions to allergens in the EBS.
In total, 172 reactions (34.3%) were identified by testing the Fragrance Series.

Linalool hydroperoxide (1% and 0.5% pet.) and limonene hydroperoxide (0.3% and 0.2% pet.), accounted for 212 positive patch tests in 101 patients (31.3%).

Of the 162 fragrance-sensitised patients, 94 (58.0%) had their allergies fully defined by the EBS alone and 21 (13.0%) fully defined by the Fragrance Series alone.

In 53 patients (32.7%), the oxidised forms of linalool and limonene were the only allergens that yielded positive patch-test reactions.

Forty-seven patients (29.0%) tested positive to the EBS as well as the Fragrance Series but in only 13 of these patients (27.7%) could the allergies be fully explained by the EBS.

Of the 48 patients who had positive patch-test reactions to FMI, 25 patients (52.1%) were also sensitised to at least one of the single constituents of the mix; but therefore approx. half of the patients

who gave a positive reaction to FMI could not give a positive reaction to any of the constituent fragrances in FMI.

With FMII, this was the case for 10 of 26 patients (38.5%). So again, over half of the patients that tested positive for FMII did not give any positive reaction to any of the constituent fragrances of FMII.

The authors of the study concluded that if only the EBS was tested, 34.0% of the sensitised patients would not have had their allergies fully defined and 13.0% would have remained undetected as fragrance allergic. Without patch testing with the hydroperoxides of linalool and limonene, 38.3% of all fragrance-sensitised patients would be missed. Therefore, it is valuable to perform patch testing with the Fragrance Series (26 substances) in addition to the EBS.

Patch testing with the hydroperoxides of linalool and limonene in the EBS will reduce the risk of false-negative reactions, vs testing with non-oxidised linalool and limonene.

Testing with the Fragrance Series of 26 detects even more fragrance-allergic cases and can help in advising what allergens to avoid.

Finally, the authors of the study recommend routinely performing patch testing with the Fragrance Series (of all 26 substances) in addition to linalool and limonene hydroperoxide (each in two concentrations) in all patients with suspected fragrance allergy.

Fragrance Mixes from Chemotechnique

Art no	Name	Conc. Veh
Mx-07	Fragrance Mix I	8.0% pet
	CINNAMYL ALCOHOL	1.0% pet
	CINNAMAL	1.0% pet
	HYDROXYCITRONELLAL	1.0% pet
	AMYL CINNAMAL	1.0% pet
	GERANIOL	1.0% pet
	EUGENOL	1.0% pet
	ISOEUGENOL	1.0% pet
	Oakmoss absolute	1.0% pet
Mx-25	Fragrance Mix II	14.0% pet
	Hexyl cinnamic aldehyde	5.0% pet
	HYDROXYISOHEXYL 3-CYCLOHEXENE CARBOXALDEHYDE	2.5% pet
	FARNESOL	2.5% pet
	COUMARIN	2.5% pet
	CITRAL	1.0% pet
	CITRONELLOL	0.5% pet

The Added Value of Patch Testing Beyond the Baseline Tray

By Dan Slodownik, et al

In DERMATITIS, Volume 33, Issue 3, May-June 2022, pp 227-231.
See DOI 10.1097/DER 0000000000000889

The authors of this paper assessed the results of 4,355 patch tests performed between 2012 and 2020 in a CD based in a large tertiary medical centre in Israel. All patients were tested using the European Baseline Series (EBS), plus any additional trays as clinically indicated. They assessed the frequency of relevant positive reactions obtained by testing substances not included in the EBS. They also investigated the potential added value and the number of tests that were done that provided just one relevant positive patch test reaction per tray.

In principle, the selection of allergens for patch testing depends on the patient's history as well as domestic, occupational, and recreational exposures, physical examination results, and allergen availability.

In 1995, the Food and Drug Administration in USA approved the use for the diagnosis of ACD of the T.R.U.E. Test, which then comprised 23 allergens (and was based on the European Baseline Series of that time). Since then, the T.R.U.E. Test has been updated twice and now comprises 35 contact allergens, (though the current T.R.U.E. Test has now diverged by approx. 50% from the current EBS).

However, according to a recent survey, most American Contact Dermatitis Society members use the expanded American Contact Dermatitis Society “Core 80 Series” and the “North American Contact Dermatitis Group 70 Series”, which more than doubles the number of allergens assessed. Even so, the authors of that earlier study estimated that 35% more relevant allergens are tested when supplemental series are being added to the EBS being tested.

An alternative standardised tray commonly used in Europe and Israel is the EBS tray from Chemotechnique Diagnostics, which includes the 30 most common allergens in Europe, as defined by the ESCD. A previous study by Lazarov demonstrated that despite Israel having differences from Europe, the EBS is a valid screening tool for the diagnosis of ACD in Israel.

This Slodownik study revealed the following points of interest:

- Nine hundred fifty-four patients (21.9%) of the 4,355 patients tested with the EBS had one or more positive relevant reactions.
- In total, 43.3% of the patients tested positive for an allergen outside the European Baseline Series.
- There are more than 4,000 known and well-described contact allergens currently in existence, and several studies have shown that at least 27% of the allergens may not be detectable by the T.R.U.E. Test alone. As a result, extended testing using designated trays in the relevant clinical setting is desirable and reveals 37% to 76% more positive reactions.
- The Fragrance tray was the most highly represented amongst the positive reactions.
- The Acrylate tray was also highly represented among the positive and relevant reactions elicited in tests not included in the EBS; 2-Hydroxyethyl methacrylate is the most prevalent allergen not included in the EBS. It is considered to be a marker for acrylate sensitivity in general with a high rate of cross-reactions to other acrylates and methacrylates, and with a clinical concordance rate of 85%, thereby justifying its addition to the EBS in 2018.
- Other highly represented allergens include chloramphenicol, 2-hydroxyethyl acrylate, and Amerchol L-101, a lanolin derivative.
- Conversely, the Cosmetics and Textile trays, although often tested, have relatively low added values.
- Surprisingly, the Cutaneous Adverse Drug Reaction Series tray (CAD-1000) yielded no positive reactions, whereas testing the patients’ own medication yielded positive results in 10.9% of the cases. Therefore, testing with the patient’s own cosmetics and medications is to be encouraged.

The authors concluded that patch testing with additional tests beyond the Baseline Tray (EBS) almost doubles the number of patients with relevant positive reactions, and so is crucial to more accurately diagnose allergic contact dermatitis.

A Comparison of Patch Testing with Nickel Sulphate in TRUE Test and in Petrolatum at 2.5% and 5% Concentrations

By Rasmus Overgaard Bach, et al
In CONTACT DERMATITIS, Volume 86, Issue 3, March 2022, pp 233-234.
See https://doi.org/10.1111/cod.14013

Despite the EU Nickel Directive introduced in 2009, nickel contact allergy is still frequent and represents a health concern. Therefore, it is important to evaluate test methods and concentrations.

Nickel sulphate 2.5% pet. is included in the ICDRG baseline patch test series. In other baseline series, such as the European Baseline Series and the Swedish Baseline Series, nickel sulphate 5% pet. is included. In TRUE Test, nickel sulphate is present in a concentration of 200 μg/cm^2.
The aim of this study was to compare the performance of nickel sulphate in TRUE Test with nickel sulphate 2.5% pet. and 5% pet.

Between January 2020 and August 2020, a total of 192 patients were patch tested consecutively with the baseline series at the Odense University Hospital Department of Dermatology and Allergy Centre in Denmark. The baseline series at this hospital consists of the TRUE Test panels 1-3 and a panel of additional allergens in Finn Chambers on Scanpor tape to complete the European Baseline Series. Simultaneously, all patients were tested with nickel sulphate 2.5% and 5% pet. from the same batch of Chemotechnique haptens, using 8 mm Finn chambers and a 20 mg dose of the hapten.

The patch tests were applied on the upper back for 48 hours under occlusion, and read on D3 and D7, according to the current ESCD guidelines.

Positive reactions were graded +, ++, and +++, whereas doubtful reactions +? were dismissed as nonallergic. Relevance of the positive reactions was not clinically investigated. Of the 192 patients, 69 (36%) had a positive reaction to either one of the nickel preparations. For TRUE Test, 21 (30% of total positives) had a positive reaction, with most of the reactions being ++ (57%). For nickel sulphate 2.5% pet., the number of total positive reactions was 20 (29% of total positives), with a majority of ++ reactions (60%). Testing with nickel sulphate 5% pet. resulted in 28 positive reactions (41% of total positives), mostly + reactions (46%) and ++ reactions (43%). Therefore, nickel sulphate in TRUE Test and nickel sulphate 2.5% pet. gave comparable test results.

In conclusion, a difference in positive reactions between the three test concentrations was found in favour of nickel sulphate 5%, with 28 positives vs 20 for nickel sulphate 2.5% and 21 for TRUE Test.

These results therefore vindicate the use of nickel sulphate 5% pet in the European Baseline Series and the Swedish Baseline Series.

European Patch Test Results with Audit Allergens as Candidates for Inclusion in the European Baseline Series, 2019/20: Joint Results of the ESSCA and the EBS working groups of the ESCD and the GEIDAC.

By Wolfgang Uter, et al
In CONTACT DERMATITIS, Volume 86, Issue 5, May 2022, pp 379-389.
See https://doi.org/10.1111/cod.14059

In 2019, a number of allergens/haptens, (audit allergens) were considered as potential additions to the European Baseline Series (EBS); namely;

- Sodium metabisulphate
- 2-bromo-2-nitropropane-1,3-diol
- Diazolidinyl urea
- Imidazolidinyl urea
- Compositae mix II (2.5% or 5% pet)
- Linalool hydroperoxides (lin-OOH)
- Limonene hydroperoxides (lim-OOH)
- Benzisothiazolinone (BIT)
- Octylisothiazolinone (OIT)
- Decyl glucoside
- Lauryl glucoside
- *Evernia furfuracea* (tree moss), was additionally tested by some departments as well.

ESSCA is a working group of the ESCD (The European Surveillance System on Contact Allergies).

GEIDAC is the group of members of the Spanish Contact Dermatitis and Skin Allergy Research Group ("Grupo Español de Investigación en Dermatitis de Contacto y Alergia Cutánea"). This complex ten-page report requires diligent study in order to extract the multitude of interesting observations from the study; however, a brief synopsis is provided below.

As always, for full information please read the original article in CONTACT DERMATITIS journal.

Altogether 12, 403 patients were tested with any of the audit allergens.
Positive reactions were as follows:

- lin-OOH 1% pet. 8.74%
- lin-OOH 0.5% pet. 5,41%
- lim-OOH 0.3% pet 5.41%
- Benzisothiazolinone 0.1% pet. 4.72%
- Sodium metabisulphate 1% pet. 3.75%
- Compositae mix 5% pet. 2.31%

For some allergens, clinical relevance was frequently difficult to ascertain.

The authors concluded that the present results should be a basis for further discussion and ultimately decision on their implementation into routine testing among the ESCD members.


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Milano
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Copper Release from Metals may Mask Positive Nickel Spot Test Results

By Michael Wennervaldt, et al
In CONTACT DERMATITIS, Volume 86, Issue 5, January 2022, pp 431-433.
See https://doi.org/10.1111/cod.14049

The dimethylglyoxime (DMG) spot test is widely used to screen for nickel release that may cause allergic nickel contact dermatitis in allergic individuals. It is a colorimetric test based on the chelation of DMG molecules to free nickel ions which form the complex Ni(DMG) that is bright pink-red. The test has high specificity, but modest sensitivity, which has caused criticism for the test's usability, especially when used on metals that have low nickel release. Because of its rapidness and low cost, the DMG spot test is widely used in various market studies and by consumers at home. The DMG spot test additionally been shown to improve diagnostic practice by visualising nickel accumulation from multiple exposure on the hands.

DMG molecules do not have specific affinity for nickel ions, and can also chelate with copper ions. This potential complication has sometimes been overlooked in the utilisation of the test for nickel screening purposes, though it is described in the European Committee of Standardisation's report CR 12471 concerning the use of the DMG spot test for nickel release.

In this study, the pink-red colouration of the DMG spot test as a result of $NiCl_2$ was proportionally discoloured brown-yellow by increasing concentrations of $CuSO_4$. The level of discolouration depended on the nickel and copper concentrations:

- At 0.05% $NiCl_2$, a slight addition of copper (0.05% $CuSO_4$) diminished the red colouration.
- At 0.1% $NiCl_2$ the red colouration was hardly distinguishable in the presence of 0.5% $CuSO_4$.
- At 0.5% $NiCl_2$, the red colouration remains distinguishable but fades with a higher concentration of $CuSO_4$.

Therefore, the presence of copper ions can effectively mask a potentially positive result of a DMG spot test. The masking effect occurs in part by brown discolouration, which makes a red colouration indistinguishable, and in part by the competitive binding to the available DMG molecules.

The DMG copper reaction itself is brown-yellow and is recognisable at high levels of copper. It has been standard practice to label a DMG spot test of any other colour than red as either negative, inconclusive, or doubtful. The results from this study support this practice.

The masking effect of copper was found to be more prominent at higher levels of copper ions and lower levels of nickel ions.

The DMG spot test has an estimated detection limit of 0.5 µg/cm^2/week. From the results of this study this sensitivity is partly confirmed, as a weak reaction was demonstrated at 0.05% $NiCl_2$, which is comparable to 0.5 µg/cm^2 of available nickel in the study design. However, at this level, a slight addition of copper (0.05% $CuSO_4$) begins to mask the result.

Copper is widely used in many metal alloys, often in combination with nickel. While copper-nickel alloys are mainly used in industry, such combinations also occur in for example in earrings (117/304, 38.5%). Copper-nickel alloys are also commonly used in European coinage and have a high level of nickel release. For example, Euro coins have been found to be positive in DMG spot testing, which further suggests that a masking by copper is only relevant for items with low levels of nickel release.

In conclusion, the authors of the study state that their results serve as a proof of concept and may explain some false-negative results in DMG spot testing and its resulting mediocre sensitivity. They emphasise the importance of only registering objects as negative if there is no colouration when DMG spot testing for excessive nickel release, as a discolouration other than red could be masking a potentially positive result.

Trends in Patch Testing in the MediCare Part B Fee-for-Service Population

By Adarsh Ravishankar, et al
In DERMATITIS, Volume 33, Issue 2, March-April 2022, pp 129-134.
See https://journals.lww.com/dermatitis/Abstract/2022/03000/Trends_in_Patch_Testing_in_the_Medicare_Part_B.6.aspx

Whilst this study, the data revealed and the conclusions that may be drawn are very USA-specific, they are nevertheless of great interest to Dermatologists in other countries, as some of the trends are undoubtedly repeated elsewhere, though hard data may be lacking or smaller in other countries.

The authors performed a study to characterise the growth of patch testing in the United States as a whole from 2010 to 2018, including comparing trends in:

- Patch testing by physician specialty (dermatology, allergy/immunology, and family medicine)
- Trends in patch testing between physicians and non-physician providers (physician assistants and nurse practitioners),
- Characterising trends in reimbursement for patch testing.

The study revealed the following data:

- From 2010 through 2018, an average of 1.25 million patch testing services per year were submitted, and 1.07 million were reimbursed.
- Over these 9 years, 60.6% of the submitted services were from Dermatologists, 39.4% were from non-Dermatologist providers (Allergists, 26.0%; Family Medicine Practitioners, 0.5%; Non-physician providers, 9.0%).
- Submitted services per 1000 Medicare Part B FFS enrolees grew from 26.4 in 2010 to 49.9 in 2018 (+89.0% increase).
- There was an increase in the submitted services for Dermatologists, Allergists, and Non-physician providers However, as a proportion of the total submitted services, the share of the submitted services from Dermatologists decreased from 71.7% in 2010 to 52.9% in 2018. In contrast, the share of the submitted services from Allergists and Non-physician providers increased from 17.6% and 5.8% in 2010 to 32.1% and 11.3% in 2018, respectively. Given the low proportion of Family Medicine Practitioners (0.5%) in relation to other providers, this group were ignored in further study.
- In terms of absolute numbers, Allergists grew 244% from 2010 to 2018, compared with 39% for Dermatologists.
- The number of submitted services from non-Physician providers (including Physician Assistants and Nurse Practitioners) increased at a significantly greater rate compared with all Physicians (34.1% per year vs 10.1% per year, respectively.
- Medicare Part B reimbursed an average of approximately US $5.07 million annually for patch

testing, of which 61.9% was paid to Dermatologists and 38.1% to Non-Dermatologist providers (Allergists, 26.2%; Family Medicine Practitioners, 0.4%; Non-physician providers, 7.5%).

- Medicare payments for patch testing per 1000 enrolees grew from US $123.36 in 2010 to US $181.90 in 2018, a 47.5% increase over 9 years.
- Patch testing services overall have increased at a statistically significant and meaningful rate from 2010 to 2018. In that time, patch testing has increased by 89.0% among Medicare Part B FFS enrolees. Factors that may explain this increase include an increasing number of patients being patch tested or an increasing number of patches performed per patient. Although the data do not specify which of these factors played a larger role, both may very well account for the increasing numbers of patch testing services provided.
- There are several potential explanations for these trends, including a decreased interest in patch testing among Dermatologists, an increased interest in patch testing among Allergists, and financial barriers and time constraints to patch testing for Dermatologists.
- In a 2016 survey of members of the American Contact Dermatitis Society (ACDS), 28% of providers reported that they were less inclined to perform patch testing because of compensation issues. The prevailing concern was lack of insurance reimbursement, followed by lack of departmental support. A previous survey of 2,453 Dermatologists in 1990 found that 27% of Dermatologists did not perform any patch testing, and 54% performed patch testing less than once per week. Reasons cited for not performing patch testing in that study included history being sufficient for diagnosis, testing being too time-consuming, and the lack of adequate reimbursement.
- Although patch testing has primarily been considered as the domain of Dermatologists, the results of the study demonstrate an increasingly greater proportion of patch testing being performed by Allergists. These findings are reflected by the number of Allergists in the ACDS, which increased from 5% in 2008 to 15% in 2020. Furthermore, unlike in the USA Dermatology residency, patch testing is a procedural component of US allergy fellowships. It has been theorised that Allergists are increasingly assuming the previous role that Dermatologists provided for patch testing services. This increase in patch testing by Allergists may be related to changes in reimbursement for skin prick tests, as prick testing has been targeted for reduction in reimbursement in the past several years.

The major limitation of this study was inclusion of only Medicare Part B FFS recipients. Although this represents more than 33 million enrolees as of 2018 (~10.2% of the US population), it still covers only a subset of patients.

In conclusion, the authors state that although Dermatologists have continued to provide most patch testing services, an increasing proportion are being performed by other providers, including Allergists and non-Physician providers. Several factors may contribute to this trend, including decreased interest in patch testing among Dermatologists, increased role of Physician Assistants and Nurse Practitioners, and expansion of Allergists into the patch testing arena. The changing landscape of diagnosis and management of contact dermatitis underscores the need for comprehensive patch testing training among all providers who perform patch testing.

As always, for full information, please read the original article in DERMATITIS journal.

Website Review

You are invited to notify us If there is a website you would like to have reviewed in a future issue of The Patch Tester or if there is a society or other website that you would like to have included in these lists.

Dermatology Society Websites

ILDS:	*International League of Dermatology Societies*	www.ilds.org
ICDRG:	*International Contact Dermatitis Research Group*	www.icdrg.org
EADV:	*European Academy of Dermatology & Venerology*	www.eadv.org
ESCD:	*European Society of Contact Dermatitis*	www.escd.org
ACDS:	*American Contact Dermatitis Society*	www.contactderm.org
APEODS:	*Asia-Pacific Envmntl & Occupational Dermatology Society*	www.apeods.org
EAACI SAM:	*European Academy of Allergy & Clinical Immunology*	www.eaaci.org
BAD:	*British Association of Dermatology*	www.badannualmeeting.co.uk
AAD:	*American Academy of Dermatology*	www.aad.org
PDA:	*Pacific Dermatololologic Association*	www.pacificderm.org
APD:	*Association of Dermatology Professors*	www.dermatologyprofessors.org
NDA:	*Nordic Dermatology Association*	www.nordicdermatology.com
GDA:	*German Dermatology Society*	www.derma.de
FSA:	*French Society of Dermatology*	www.sfdermato.org
CDA:	*Caribbean Dermatology Association*	www.caribbeanderm.org
ACD:	*Australian College of Dermatologists*	www.dermcoll.edu.au
NZDS:	*New Zealand Dermatology Society*	www.nzdsi.org
DNA:	*Dermatology Nurses Association*	www.dnanurse.org
DermNET NZ:	*Dermatology Infomation Resource for Patients*	www.dermnetnz.org

Dermatology Meeting Websites

www.eadv.org
www.aad.org
www.dermatologymeeting.com
www.asiaderma.sg
www.dubaiderma.com
www.cairoderma.com

In this eleventh issue of “The Patch Tester” we are taking a look at the websites of the dermatology societies of Spain and Portugal. Whilst both these websites are written in their native languages, Castilian Spanish and Portuguese respectively, use of automated translation facilities such as with the Google Chrome browser enables English language speakers to read and learn more about these societies from their websites.

SPAIN – Academia Española de Dermatologia y Venereologia

Obviously, Spain is one of those countries where the speciality of Dermatology is still inextricably linked with Venerology; for better and for worse.

Established in 1909, the society has a Board of Directors with no less than 29 Directors under the president Dr Pedro Jaen Olasolo, and with ten territorial sections for a population of approximately 47 million persons, then AEDV must surely be one of the most differentiated professional Dermatology societies in the world.
See www.aedv.es.

From the roles of the listed directors, it is clear that the functions of the society are focussed on training, research, patients/public, and communications.

The society has its own Academy magazine “Proceedings”.

There is also a foundation called “Fundacion Piel Sana” which translates to “Healthy Skin Foundation of AEDV” for patients and members of the public. This offshoot of the AEDV is also highly differentiated with an extensive Executive Committee, a board of Directors, Presidents of territorial Sections, with numerous ongoing projects and activities.
See https://fundacionpielsana.es/

There is also a focus group called GEIDAC, “Grupo Espagñol en Investigacion de dermatitis de Contacto y Alergia Cutanea”, which translates to Spanish Research Group on Contact Dermatitis and Skin Allergy. This GEIDAC group were very deeply involved with ESCD and EBS and ESSCA in their research paper “European Patch Test Results with Audit Allergens as Candidates for Inclusion in the European Baseline Series, 2019/20: Joint Results of the ESSCA and the EBS working groups of the ESCD and the GEIDAC”, which is reported as article #5 in this issue of The Patch Tester e-mag. See https://aedv.es/institucional/grupos-de-trabajo/dermatitis-de-contacto-y-alergia-cutanea/#

Th society holds annual National Congresses, with the most recent being a hybrid meeting (physical and online) on June 1st to 4th in Malaga. In addition, Spain is hosting the CILAD 2022 congress of the 23rd Ibero-Latin American Congress of Dermatology, in Madrid, on June 30th to 3rd July 2022.

There are also numerous training and education courses on various topics in Dermatology (and Venerology) around the country and throughout the year. For further information on these courses, see https://aedv.es/comunicacion/noticias/.

So, now, post-COVID, it really is all happening in Spain !!

PORTUGAL – Sociedade Portuguesa de Dermatologia e Venereologia

The website at www.spdv.pt/_home allows viewing in three languages, including the English language.

Incidentally, the webpage at https://dermnetnz.org/topics/worldwide-dermatology-societies is a very useful directory of the world's national dermatology society, and seems to currently be more useful than the corresponding service offered by ILDS at https://ilds.org/our-members/directory/ where the only response to an enquiry for any member country is …. "Sorry, we couldn't find this page".

There are approximately 350 Dermatologists in Portugal, plus another 50 undergoing training and education, for a country population of just over ten million persons.
Their annual national congress, the 21st, will be held in Lisbon on 11th to 13th November 2022.

The Portuguese society also has its own dedicated printed journal, quarterly, with the cover of latest issue shown here. The articles are in Portuguese language by primarily Portuguese Derma-

tologists with topics of particular interest and relevance to Portugal and Brazil. The Journal of the Portuguese Society of Dermatology and Venereology (SPDV), owned by this Society, has been published without interruption, on a quarterly basis, since 1942. Its primary objective is to disseminate quality works in all areas of the specialty. It publishes articles, with scientific referees, of continuing medical education, original or review articles, clinical case reports and letters to the editor, of interest to the specialty. Priority is given in publication and particular emphasis, in specific headings, to articles on sexually transmitted infections, dermatopathology, dermoscopy, surgical dermatology and paediatric dermatology.

Usefully, the society website lists relevant patient associations and organisations. Perhaps the most interesting of these patient organisations for patch testing Dermatologists and Atopic Dermatitis patients is ADERMAP, “Associacao Dermatite Atopica Portugal”.
This association was founded in 2018 and is dedicated to helping to respond to the challenges that Atopic Dermatitis represents both for people living directly with this disease and for those who are indirectly affected by it, family, friends, employers, among others.
See their website at https://www.adermap.pt/quem-somos .

ADERMAP
Associação Dermatite Atópica Portugal

Through a concerted strategy and action plan, ADERMAP aims to help bring the AD community together and empower in Portugal, as well as promote the exchange of experiences, research and the sharing of information on this disease, and on ways of dealing with it. treatment and control, thus hoping to help increase health outcomes, namely with regard to the quality of life of people affected by this disease and its comorbidities.

Contact Dermatitis / Patch Testing

Dermatology - International

5th to 7th July 2022
BAD 2022
British Association of Dermatologists
Glasgow, Scotland
conference@bad.org.uk

12th – 13th July 2022
Int'l Conference on Dermatitis and Dermatology ICDD
Prague, Czechia
https://waset.org/dermatitis-and-dermatology-conference-in-july-2022-in-prague

9th – 10th August 2022
Int'l Conference on Allergic Eczema and Dermatology ICAED
New York, USA
https://waset.org/allergic-eczema-and-dermatology-conference-in-august-2022-in-new-york

7th to 11th September 2022
EADV Congress
European Academy of Dermatology and Venerology
Milano, Italy
https://eadv.org/calendar/show/61

3rd to 8th July 2023
ILDS WCD-2023
World Congress of Dermatology
Singapore
https://www.wcd2023singapore.org

The webpage at www.waset.org/dermatology-conferences-in-2022 is one potentially very useful source of information of Dermatology congresses in 2022.

WASWT is the World Academy of Science, Engineering and Technology. Their webpage states numerous dermatology-related congresses and conferences for 2022.

In this current era of ever-changing health and travel restrictions due to the ongoing COVID-19 pandemic, the organisation of conferences and congresses, including of course dermatology congresses, is in a state of evolution and flux. Always check with the official website for the latest information on any congress of interest.

A word of warning, as has been stated elsewhere in the dermatology world, we need to be aware of the possibility of wishful thinking, opportunism, obsolescent statements, and even misrepresentations or false advertising for congresses. See https://www.bad.org.uk/events/eventcalendar